

## CLAIMS

What is claimed is:

- 1 1. A retroreflective article comprising:
  - 2 a) a microporous substrate containing a plurality of pores which
  - 3 are less than  $0.5 \mu\text{m}$  in diameter; and
  - 4 b) a layer of reflective material located on the surface of the
  - 5 substrate such that said layer at least partially obscures a plurality of the
  - 6 pores of the substrate.
- 1 2. A retroreflective article, as set forth in claim 1, additionally comprising
- 2 a protective coating material layer, overlying said layer of metal.
- 1 3. A retroreflective article, as set forth in claim 2, wherein said protective
- 2 coating material is selected from the group consisting of polyurethanes,
- 3 polymethylmethacrylate and copolymers thereof, styrene-acrylonitriles,
- 4 polystyrene, polycarbonate, organosiloxanes, amorphous polyolefins,
- 5 evaporative dielectric coatings and other transparent materials.
- 1 4. A retroreflective article as set forth in claim 1, wherein said substrate
- 2 contains a plurality of pores which have diameters which are less than
- 3 the wavelength of visible light.
- 1 5. A retroreflective article, as set forth in claim 1, wherein said substrate
- 2 is comprised of a nanoporous polymeric film.
- 1 6. A retroreflective article, as set forth in claim 4, wherein said substrate
- 2 is in the form of a fabric.
- 1 7. A retroreflective article, as set forth in claim 5, wherein said substrate
- 2 is selected from the group consisting of polyethylene,

3            polytetrafluoroethylene, polypropylene, polyethylene terephthalate,  
4            polymethylmethacrylate and polyacetates.

1        8. A retroreflective article, as set forth in claim 1, wherein said reflective  
2            material layer is selected from the group consisting of metals and  
3            dielectric coatings.

1        9. A retroreflective article, as set forth in claim 8, wherein said metals are  
2            selected from the group consisting of aluminum, chromium, nickel,  
3            silver and gold.

1        10. A retroreflective article, as set forth in claim 9, wherein said reflective  
2            material is aluminum.

1        11. A retroreflective article, as set forth in claim 10, wherein said reflective  
2            material layer has a thickness of between about 0.001 to about 0.0001  
3            inches (about 0.025 to about 0.0025 mm).

1        12. A retroreflective article, as set forth in claim 1, wherein an optical  
2            performance enhancing characteristic has been introduced into said  
3            article.

1        13. A retroreflective article, as set forth in claim 12, wherein said optical  
2            performance enhancing characteristic is a repeating corner cube design.

1        14. A retroreflective article, as set forth in claim 1, additionally comprising  
2            an adhesive layer located on the side of said substrate opposite to the  
3            side on which said reflective material layer is deposited.

1        15. A retroreflective article, as set forth in claim 1, affixed to a carrier  
2            substrate member via said adhesive layer.

- 1       16. A method for the production of a reflective article comprising the steps  
2       of:  
3              a) providing a substrate which contains pores which have a  
4              diameter of less than  $0.5 \mu\text{m}$ ; and  
5              b) applying a layer of reflective material to the substrate in such  
6              a way that said layer at least partially obscures a plurality of the pores  
7              of the substrate.
- 1       17. The method, as set forth in claim 16, further comprising the step of  
2       applying a protective layer to said reflective article, overlying said layer  
3       of metal.
- 1       18. The method, as set forth in claim 17, wherein said protective coating  
2       material is selected from the group consisting of polyurethanes,  
3       polymethylmethacrylate and copolymers thereof, styrene-acrylonitriles,  
4       polystyrene, polycarbonate, organosiloxanes, amorphous polyolefins,  
5       evaporative dielectric coatings and other transparent materials.
- 1       19. The method, as set forth in claim 16, wherein said reflective material is  
2       selected from the group consisting of metals and dielectrics.
- 1       20. The method, as set forth in claim 19, wherein said metal layer is selected  
2       from the group consisting of aluminum, chromium, nickel, silver and  
3       gold.
- 1       21. The method, as set forth in claim 20, wherein said metal is aluminum  
2       and is applied in a layer that is between about 0.001 to about 0.0001  
3       inches (about 0.0254 to about 0.00254 mm) thick.

- 1       **22.** The method, as set forth in claim 16, further comprising the step of  
2                   processing said article to introduce optical performance enhancing  
3                   characteristics.
- 1       **23.** The method, as set forth in claim 22, wherein said step of processing to  
2                   introduce optical performance enhancing characteristics comprises  
3                   embossing said article using calendar rolls or flat plates.
- 1       **24.** The method, as set forth in claim 23, wherein said step of processing  
2                   includes heating said calendar rolls.
- 1       **25.** The method, as set forth in claim 23, wherein said step of processing to  
2                   introduce optical performance enhancing characteristics includes  
3                   introducing a repeating corner cube design into said reflective layer.